

Development and evaluation of an integrated project-based and stem teaching and learning module on enhancing scientific creativity among fifth graders

ABSTRACT

This research aimed to i) determine the validity, reliability, and appropriateness of an integrated project-based learning and STEM teaching and learning module (PjBL-STEM), and ii) evaluate its effects on the scientific creativity of Fifth Graders. The first phase of evaluation involved seven subject matter experts and 30 Fifth Graders. Data were captured through students' responses to two 5-point Likert scale questionnaires, open ended questions and scientific creativity test. The second phase of evaluation employed a pre- and post-test non-equivalent control group quasi experiment design. A total of 60 Fifth Graders from two primary schools were randomly assigned to a PjBL-STEM group (n=30) and a control group (n=30). The results of the PjBL-STEM evaluation indicated a good content validity and an acceptable reliability with alpha Cronbach's value of .65 to .87. Students showed a moderately high positive perception (m=4.37) towards the PjBL-STEM activities. The positive written responses of students indicated the appropriateness of the module. The result of independent samples t-test established the significant positive effects of the PjBL-STEM on all trait dimensions of scientific creativity. These findings showed that PjBL-STEM provides a reliable, valid, appropriate and effective teaching and learning module to foster the scientific creativity of Fifth Graders.